NOTES AND LITERATURE

MENDELIAN FLUCTUATIONS[1]

WHEN the observed proportions, say of dominants and recessives, in any Mendelian experiment are worked out for small groups, such as individual litters or the seeds on individual plants in individual fruits, considerable fluctuations round the expected proportions may be observed. In the present note the magnitude of these fluctuations is compared with the magnitude to be expected if the fluctuations were the result merely of chances of sampling—corresponding to the fluctuations that would be observed in drawing, say, samples of black balls from a bag containing white and black balls in the proportion of 3 to 1. In so far as there is good agreement, this is additional confirmation of the Mendelian process holding good in its simplest form: if the fluctuation observed is markedly greater than this theory would indicate, some source of disturbance is certainly present, but whether this disturbance arises from irregularities in the distribution of the gametes or merely from extraneous circumstances (varying death-rates or difficulties of sorting) can not, of course, be determined from the data alone. For albinos in individual litters of mice (Darbishire's data), and for numbers of "green" or "wrinkled" in Mr. Bateson and Miss Killby's crosses of peas I find exceedingly good agreement, at least if very small plants are omitted. Lock's data for maize give good agreement for the DR $\times$ DR cross, but poor agreement for the DR $\times$ RR cross. Some data given me by Miss E. R. Saunders for seed characters in the individual fruits of stocks show rather irregular results. Further comparisons on similar lines would be of interest, especially for the DR $\times$ RR cross, for which very few data are available. For the case to afford a good test the sorting should be clear and there should be nothing in the data to suggest differential death rates obviously.

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[1] "Fluctuations of Sampling in Mendelian Ratios," G. Udny Yule (Proc. Cambridge Phil. Soc., XVII, 425).